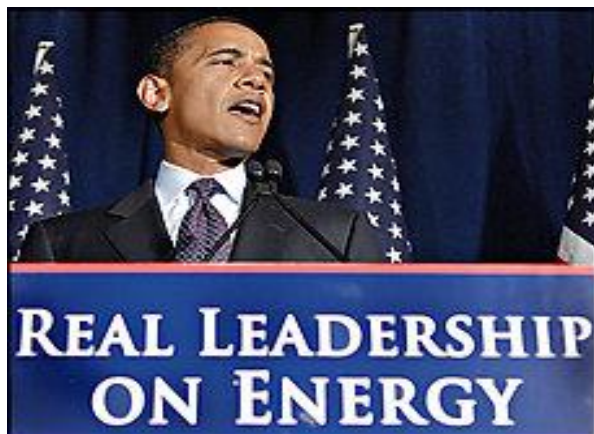


Shale Gas and US National Security

Amy Myers Jaffe
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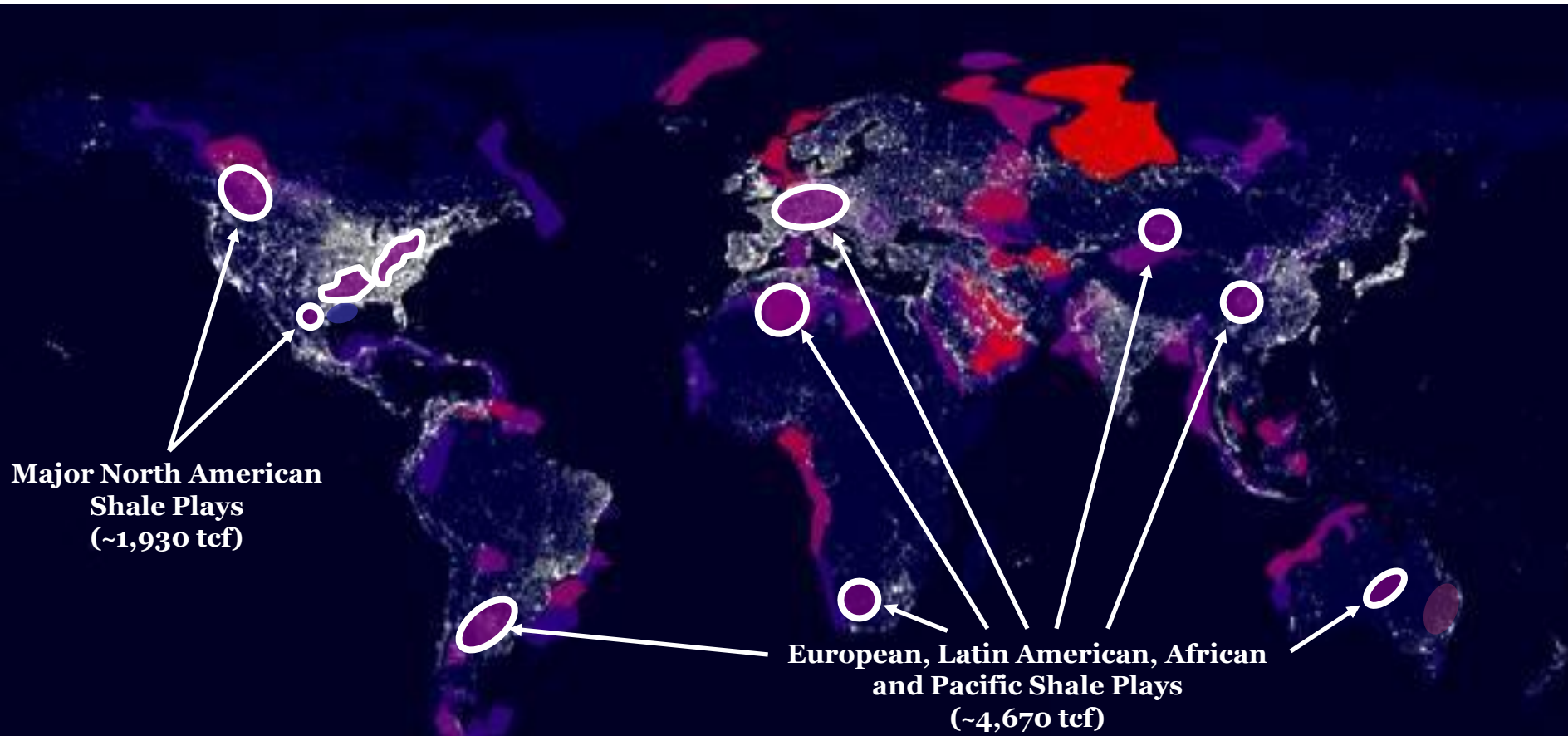


Baker Institute
October 19, 2011



Unconventionals Changing Global Energy Landscape

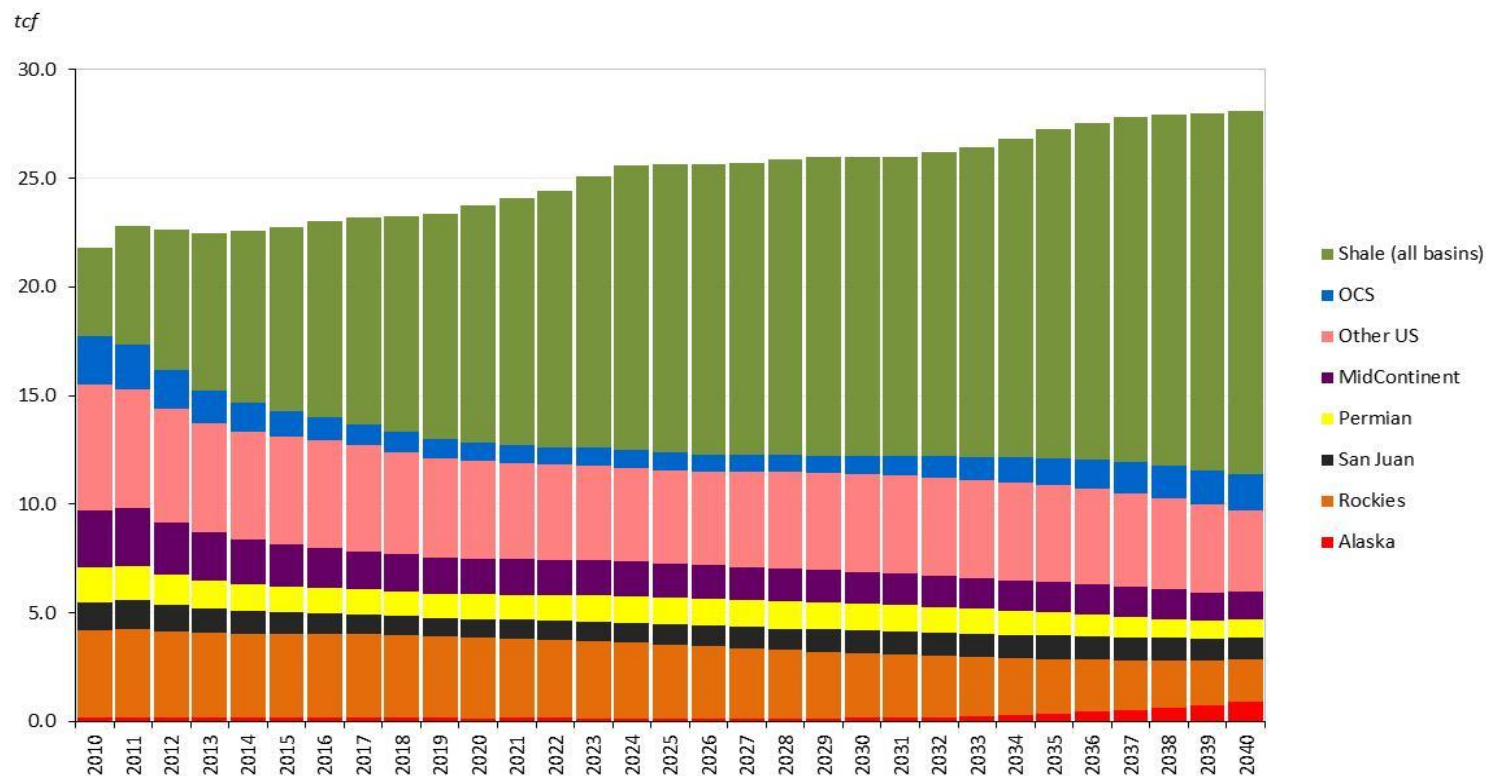
New World Vision: Shale will alter the energy security picture for major end-use markets, limiting individual producer petro-power and creating a more competitive marketplace that could even weaken cohesion inside oil OPEC



**Over 6,600 tcf of shale according to ARI/EIA report, 2011*

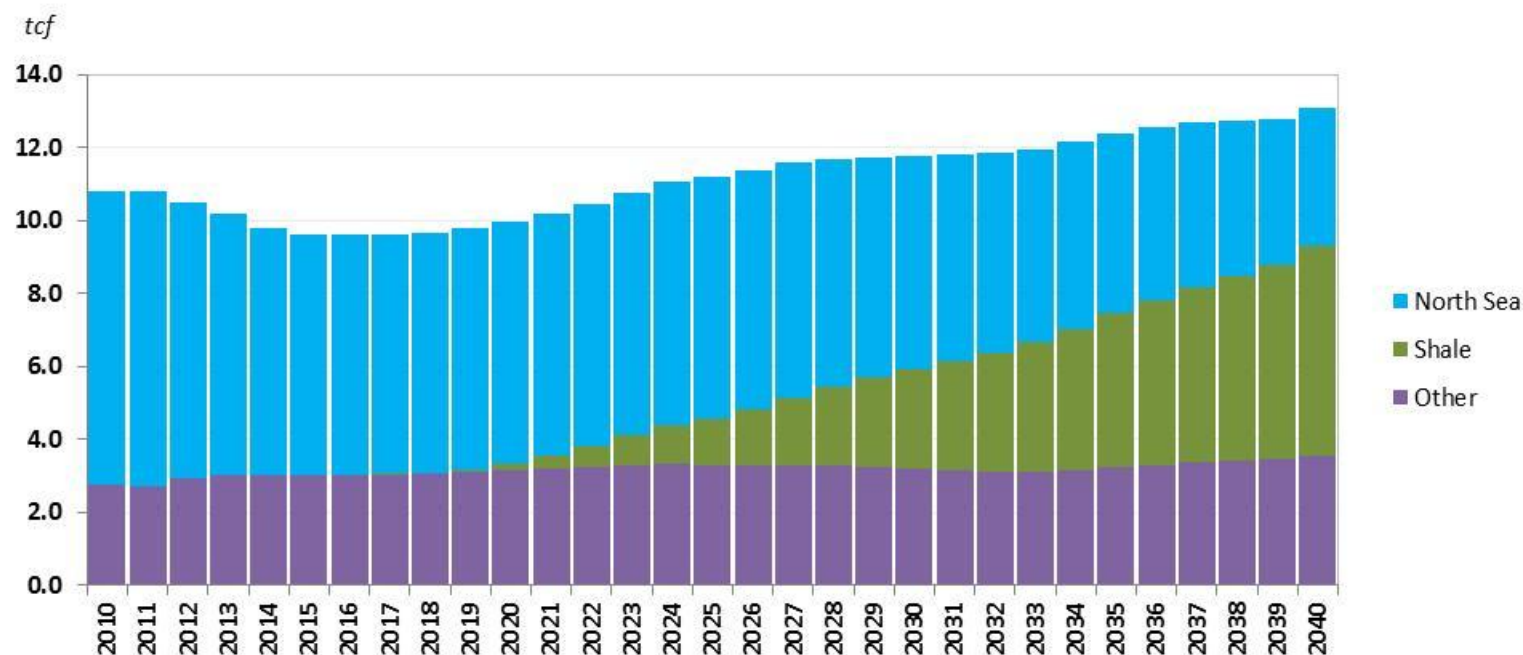
Reference Case: Composition of U.S. Production, 2010-2040

- U.S. shale gas production exceeds 50% of total production by 2030.
- Canadian shale gas production grows to 1/3 of total output by the mid-2030's (not pictured).



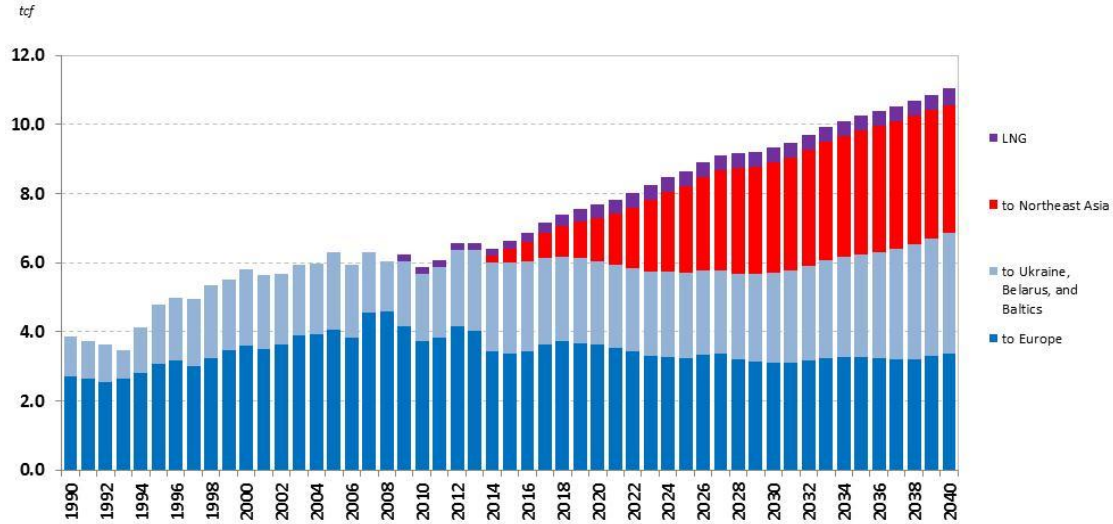
Reference Case: Shale Production in Europe, 2010-2040

- European shale production grows to about 35% of total production by 2040. While this is not as strong as North America, it does offset the need for increased imports from Russia, North Africa, and as LNG. In fact, the impact of shale growth in Europe is tilted toward offsetting Russian imports, but it also lowers North Sea production at the margin, as well as other sources of imports.

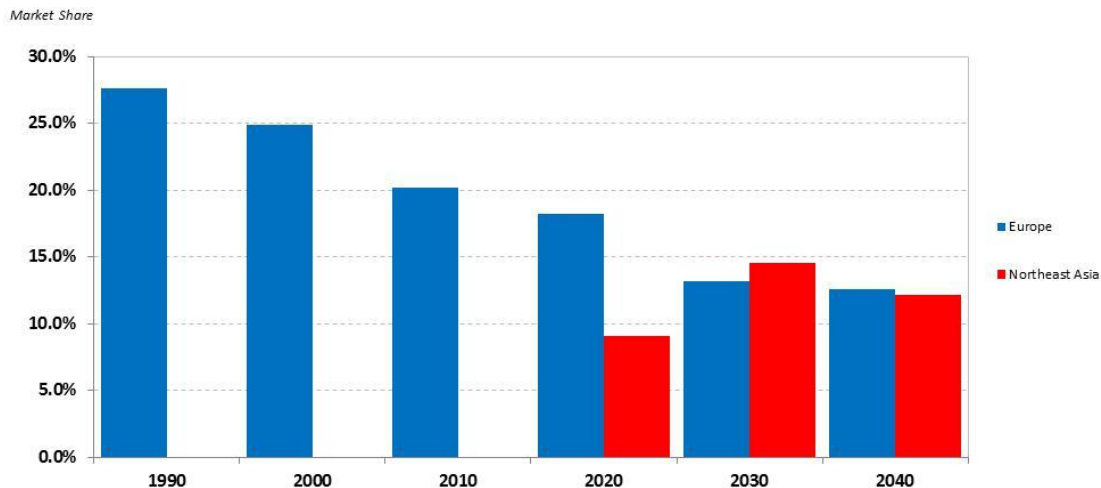


Reference Case: Russian Exports, 1990-2040

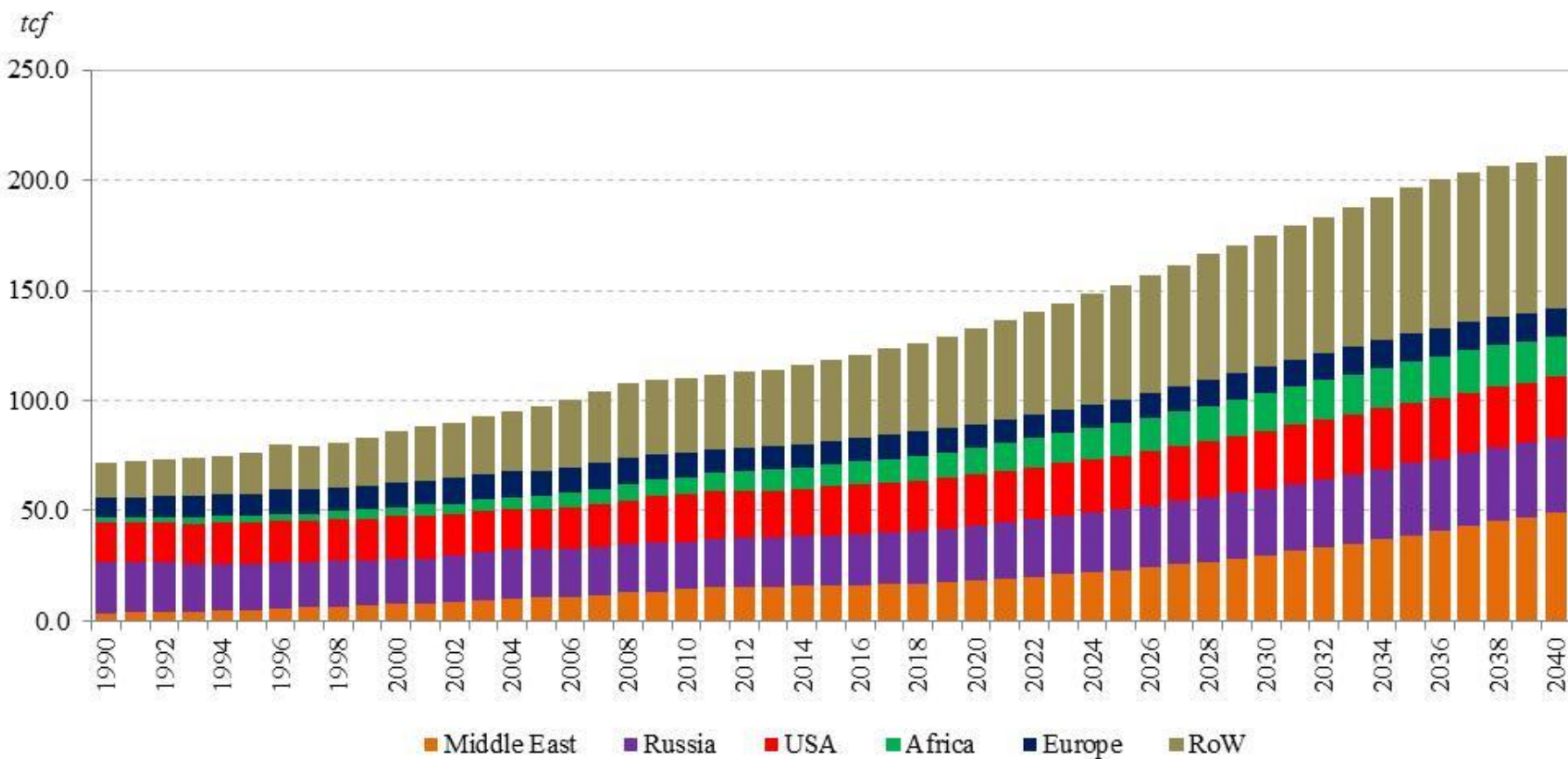
- Russian opportunities to Europe are diminishing as a result of shale production growth and Europe's increased pull on LNG.



- The market share of Russia in non-FSU Europe falls to just over 13% by 2040, while it rises then stabilizes at just over 12% in Northeast Asia.



Shale gas delays heavy reliance on Middle East Gas for decades



World Supply by Region, 1990-2040 (Reference Case)